

3.0 FIELD ACTIVITIES AND PROCEDURES

All fieldwork for this sampling effort was conducted in accordance with the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) contained within the project Work Plan (WP) dated November 2003. Any deviation from these plans that became necessary during the course of the investigation is noted in the following discussion. In addition, all fieldwork was conducted in accordance with the Site Safety and Health Plan (SSHP) prepared specifically for this project. Records of the fieldwork, including samples collected, were kept in a serial numbered, bound notebook unique to this study.

3.1 Field Sampling Procedures and Variations

The direct pushes were advanced using a direct push rig. The direct push core sampler consisted of three components: a cutting shoe, a drive head, and the sample sleeves. The sampler was driven into the subsurface using the hydraulics of the direct push rig. The initial core sample was collected in the clear plastic (tube) sleeve and sampler. The sampler was then extracted from the boring and the sample sleeve removed. A new sleeve was then placed in the sampler. The sampler was then advanced to the last depth of penetration by adding a series of drive rods, and the procedure was repeated.

To collect soil samples for field classification and chemical analysis, clear, plastic liners were used in the direct push core sampler. The sampler was pushed to the appropriate depth allowing a continuous core. The plastic liner or tube was removed from the sampler and the tubes were sliced open lengthwise and then the samples collected. An EnCore[®] sampler device was used to collect the first soil samples testing for VOC and TPH-purgeable (EPA, 1996). The EnCore[®] sampling device seals the soil in the container for laboratory shipment. Next soil samples from selected depths, selected for laboratory analysis, were collected from the plastic tube into eight-ounce glass jars. All soil samples were sent to the contracted lab using eight-ounce clear glass jars and EnCore samplers. Direct push cores were logged in the field in accordance with ASTM D-2488-93, "Standard Practice for Description and Identification of Soils (Visual Manual Procedure)."

Drilling logs forms (ENG Form 1836) were used in the field to record the soil descriptions, sampled depths, and the sample identification number (see Appendix C for completed direct push soil logs). The pushes were backfilled with neat cement, or filled with bentonite slurry through a tremie pipe placed at the bottom of the push. Direct push locations were surveyed using a global positioning system (GPS). Following the fieldwork, a map was prepared showing all sample locations (see Figure 3-1). Survey coordinates were recorded and submitted in electronic files that meet the Environmental Data Management System (EDMS) data exchange protocols. Where a QC duplicate was required, a sample was collected immediately below or above the primary sample if possible and placed into eight-ounce glass jar. The samples were labeled, sealed in Zip-lockTM plastic bags, and placed in ice-filled coolers as described in the FSP. The samples were sent daily to the contracted laboratory, by land using Federal Express, under chain-of-custody protocol.

As planned, twelve direct push cores were accomplished. Two samples were collected from each core location except for location HAAF-ADA-206 where bedrock was encountered at a shallow depth; therefore, only one sample was collected. The samples from each core location were collected from a depth that was determined in the field. This determination was made in consultation with the FNC geologist on-site after inspection of the core. The USACE field sampling personnel collected, packaged, shipped and had the twenty-three samples analyzed.

In addition to these twenty-three samples, the Army had agreed to collect; package and ship twelve split samples for analysis by the FNC. These twelve split samples were to be used to corroborate any USACE's sample analysis results if need be. The split samples were collected from any of the twenty-three samples stated above at the direction of FNC. The FNC samples were collected in EnCore samplers and clear glass jars provided by the FNC. At that time, FNC took responsibility for labeling, packaging, transport and analysis of these samples. A laboratory, under contract with the FNC, Sequoia Analytical, will analyze the additional primary samples at the direction of FNC.

Variations in the original sampling procedures as documented in the FSP were due to unforeseen complications and/or to improve data quality.

3.2 Locating the Historic Slough and Variations

Originally planned, three locations within the site area were going to be used to determine the location and, if possible, the depth of the historic slough for the purpose of soil sampling. Three transect lines, a series of direct push cores in a line, was going to be the method used to determine the location and depth of the historic slough. Then, by visual examination of the direct push cores, the location and depth of historic slough could be determined by differences found in soil horizons. The location of samples HAAF-ADA-201, HAAF-ADA-207, and HAAF-ADA-208 were going to be determined by this method (see Figure 3-1).

During field observations, the presence of the historic slough was evident from the slough-like depressions in the overgrown shallow grasses, the aerial photograph, and a series of direct pushes. Only one direct push transect line was conducted instead of the scheduled three; the location HAAF-ADA-208 (see figure 3-1) was the first transect line of direct pushes to try to determine the historic slough. From the soil cores, there was no unusual sediment stratification or evidence between soil horizons to determine the presence of any historic slough bottom or the presence of man-made fill. Direct push logs can be found in appendix C for review.

3.3 Soil Sampling Design and Variations

The twenty-three soil samples were collected from twelve direct push cores (HAAF-ADA-201 through HAAF-ADA-212) shown in Figure 3-1. Each direct push was conducted using Vironex's 5400 Series direct push rig using Geoprobe's four-foot clear tubes to a maximum depth of sixteen feet below ground surface (bgs). The FNC had the primary responsibility to locate the sampling depths.

The FNC selected twelve split sample locations and depths from within the twelve direct pushes for the purpose of their own chemical analysis suite. Side by side Encore samples were collected. The remaining soil was evenly split between the FNC and the Army's glass sampling jars for shipment to a laboratory for analysis. The FNC only analyzed a few compounds in a few

select samples. The FNC submitted one sample (FNC-202-02) for metals, pesticides, SVOC, TPH, and VOC analysis; three samples (FNC-205-06, FNC-211-06 and FNC-212-06) for TPH and VOC analysis; one sample (FNC-207-05) for metals, pesticide and SVOC analysis; and one sample (FNC-206-01) for pesticide analysis. Appendix D contains the chain of custody forms for this effort. In addition, one soil sample duplicate was collected for quality assurance.

All sampled locations were measured, marked, and electronically located using Trimble's Pro XRS Global Positioning System (GPS). Boring log sheets (Engineering Form 1836) were utilized during the soil sampling procedure to record the sediment structure (stratum).

Only two variations to sampling occurred. The first is that only twenty-three out of the scheduled twenty-four soil samples from the direct push cores were collected. The direct push located at HAAF-ADA-206 reached a maximum depth of eight feet due to hitting bedrock material composed of decomposing fine- to medium-grained sandstone; only one sample was collected from this direct push core. Also, direct pushes from HAAF-ADA-03, and HAAF-ADA-05 had push refusals due to bedrock material at depths of ten feet and fourteen feet, respectively.

The second variation is that the Army did not analyze four shallow samples for pesticides. During the field-sampling planning, it was agreed by all parties that samples from the top few feet of soil would not be analyzed for pesticides because previous studies at Hamilton Army Airfield already demonstrated the presence of pesticides in surface soils. The sample labels not analyzed are HAAF-ADA-202-02, HAAF-ADA-203-00, HAAF-ADA-206-01, and HAAF-ADA-210-02 (see Figure 3-1).

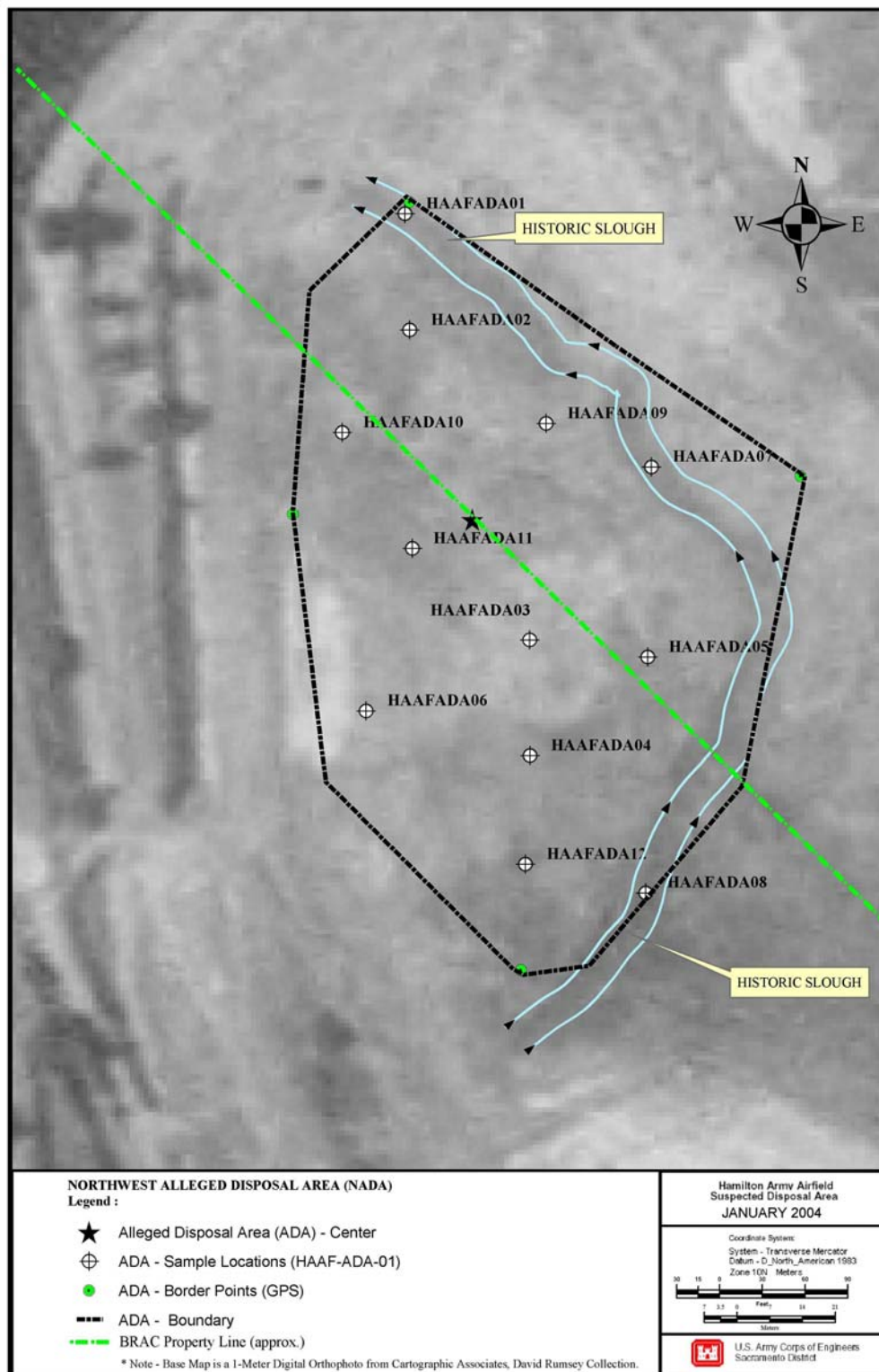


Figure 3-1. Direct push soil sample locations.